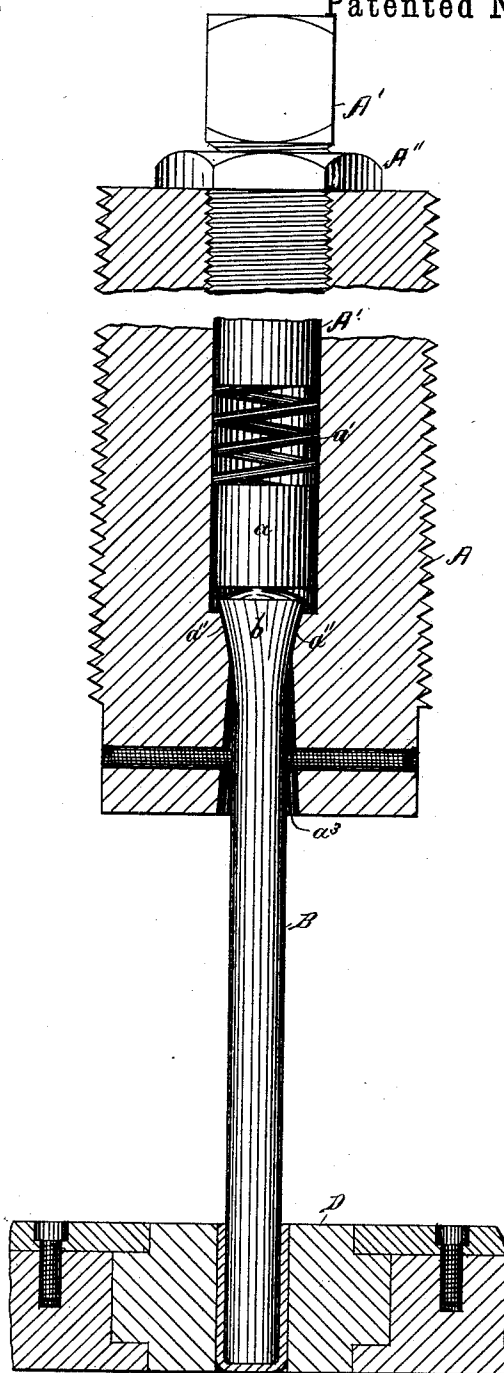


(No Model.)

R. WHITE.
SOCKET FOR PUNCHES.

No. 353,192.

Patented Nov. 23, 1886.



WITNESSES-

W. H. H. Hyde,
J. A. Hopkins

INVENTOR-

Rollin White
By His Attorneys
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UNITED STATES PATENT OFFICE.

ROLLIN WHITE, OF LOWELL, MASSACHUSETTS.

SOCKET FOR PUNCHES.

SPECIFICATION forming part of Letters Patent No. 353,192, dated November 23, 1886.

Application filed July 19, 1886. Serial No. 208,464. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN WHITE, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Sockets for Punches, of which the following is a specification.

My invention relates to an improvement in sockets for punches, and is especially adapted to punches used for drawing hollow metallic articles.

In drawing cartridge-shells and similar articles great care must be used to have the axis of the punch exactly in line with the axis of the die through or into which it drives the article to be drawn, and even if the punch be exactly set an accidental blow or heavy jar may throw it out of exact line. In automatic machines, where two or more movable dies are used, the difficulty of setting the punch is much increased, as the slightest irregularity in the movement of a die will bring the die-opening out of line with the punch. I remedy this difficulty by securing the upper end of the punch in a socket in such a manner that when the punch is pressed upward, as in the operation of drawing, it is at liberty to move laterally, and so adjust itself to the die-opening.

In the accompanying drawing, the figure is a sectional elevation of my improved punch-holder with the punch, and a sectional elevation of a die, a part of the die-holder, a blank being represented in the die.

The letter A refers to the punch-holder, which is preferably provided with an external screw-thread, which is adapted to engage with nuts turning above and below the head of the machine. The upper end of this holder is provided with a screw-threaded hole, in which turns a screw, A', (provided with a check-nut, A'') which presses upon a spring, a'. The spring a' is compressed between the lower end of the screw A' and the follower a, which presses upon the upper end of the punch B, and thus retains it in its seat a'' until sufficient upward pressure is exerted to counteract the force of the spring and raise the head of the punch out of its seat.

The punch B is provided with an enlarged head, b, having a downwardly-decreasing taper. This head b is received in a seat, a'', in the punch-holder, said chamber having a down-

wardly-decreasing taper corresponding to and fitting the enlarged head of the punch. The lower end of the holder A, below the seat a'', is chambered out at a' somewhat larger than the body of the punch, and is preferably provided with screws c c, which turn in screw-threaded holes radially to the axis of the punch, so that the lateral motion of the punch may be limited in one or more directions. When at rest, the punch is retained in its seat by the pressure of the spring upon the follower, which rests upon the upper end of the enlarged head.

In operation it will be seen that as the punch descends and forces the blank into the die D, the upward pressure will raise the enlarged head out of its seat, and the punch is then free to move in a lateral direction, thereby automatically adjusting itself to the exact line of the die, the force necessary to raise the punch being increased or diminished as the screw A' is turned down or up upon the spring a'. The lateral motion of the punch may be limited by three or more radial screws, c c.

To remove the punch the screw A' is removed, the spring a' and follower a raised out of the holder, and the punch lifted from its seat and removed through the top.

It is evident that if the head b of the punch were made somewhat more spherical, and the seat a'' also made somewhat hemispherical to fit the lower portion of the head, even if the spring a' and follower a were dispensed with and the screw A' screwed down upon the punch, the lower end of the punch could be moved laterally, as if it were pivoted at the upper end; but I prefer to construct it substantially as shown and heretofore described.

I claim as my invention—

1. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end, and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, as and for the purpose specified.

2. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end,

and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, a spring pressing said enlargement into said seat in said holder, as and for the purpose specified.

3. The combination of a punch-holder having a chamber provided with a contracted punch-seat, a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end, and adapted to reach into a chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, a vertical screw turning in said holder above said punch and thrusting against a spring interposed between the upper end of said punch and said vertical screw, as and for the purpose specified.

4. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank

generally smaller than the mouth of said chamber, but having an enlargement near its upper end, and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, and two or more screws passing radially through the lower part of said chamber and thrusting against said shank, as and for the purposes specified.

5. The combination of a punch-socket, a punch adapted to move laterally in said socket, and screws passing radially through the lower part of said socket and thrusting against the shank of said punch, as and for the purpose specified.

ROLLIN WHITE.

Witnesses:

HERBERT R. WHITE,
ALBERT M. MOORE.